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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,571	01/30/2004	Thomas R. Apel	008.P001	8895

7590 05/04/2005

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EXAMINER

WARREN, MATTHEW E

ART UNIT PAPER NUMBER

2815

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/769,571	Applicant(s) APEL ET AL.	
	Examiner Matthew E. Warren	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/30/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Election and Amendment filed on February 10, 2005.

Election/Restrictions

Applicant's election of Group I, Claims 1-18 in the reply filed on February 10, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

Figures 1-4 and 18-20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 2 is objected to because of the following informalities: In line 2, the claim should recite "said emitter region and is in direct...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 17 and 18, the applicant recites that the bipolar transistor has a Ccb and Rb' 20% or 40 % less than comparable transistors, however there is no recitation of a structure of the invention. The applicant has merely recited an inherent property of the invention. Because comparable bipolar transistors may vary in Ccb or Rb' properties due to the size, doping, electrical parameters, materials, etc. there is no standard Ccb or Rb' value to compare to. Its novel properties of the claimed device cannot be ascertained because no structure is recited.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 12, 17 and 18, as far as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al. (US 5,266,819).

In re claim 1, Chang et al. shows (figs. 7 and 8) an alternate embodiment for an integrated circuit comprising: a bipolar junction transistor in which a base contact region (61") forms a fishbone configuration and an emitter region (61') is adjacent to the periphery of the fishbone configuration.

In re claim 2, Chang shows (figs. 8) that an emitter contact region (E) has an isomorphic shape with respect to the emitter region and is in direct physical contact with the top surface of the emitter region. The contact (E) has the same rectangular shape as the emitter region portion below it and is therefore isomorphic.

In re claims 3 and 4, Chang discloses (col. 4, lines 65-67) that the contact regions comprise conductive material such as metal.

In re claims 5, 6, and 12, Chang discloses (col. 5, lines 67) that the transistor comprises AlGaAs and GaAs and may be a heterojunction bipolar transistor.

In re claim 7, Chang shows (fig. 7) that the base region contacting tab is embedded within an extension (portion marked B) from a spine of the fishbone configuration.

In re claims 17 and 18, as far as understood, Chang discloses (col. 5, lines 50-65) bipolar heterojunction transistor having a collector-base capacitance and extrinsic base resistance that is lower than typical devices. The device, having such properties, is shown in figures 7 and 8 and has a base contact structure with a fishbone configuration and an emitter is formed adjacent a periphery of the base region.

Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (US Pub. 2005/0023643 A1).

In re claim 1, Li et al. shows (figs. 3a and 3b) an integrated circuit comprising: a bipolar junction transistor in which a base contact region (118) forms a fishbone configuration and an emitter region (112) is adjacent to the periphery of the fishbone configuration.

In re claim 2, Li shows (figs. 3a and 3b) that an emitter contact region (116) has an isomorphic shape with respect to the emitter region and is in direct physical contact with the top surface of the emitter region. The contact (116) has the same rectangular shape as the emitter region (112) and is therefore isomorphic.

In re claims 3 and 4, Li discloses [0018] that the contact regions comprise conductive material such as metal.

In re claims 5 and 6, Li discloses [0027] that the transistor comprises InP and may be a heterojunction bipolar transistor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 5,266,819) as applied to claim 1 and 6 above, and further in view of the cited case law.

In re claims 8-11, pertaining to the types of devices that the bipolar transistor is employed in, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F. 2d 1647 (1987). Furthermore, amplifiers and cell phones are merely known devices which may employ a bipolar transistor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bipolar transistor of Chang by using it in a power amplifier and/or cell phone to enable those devices to operate to increase the operating frequency.

In re claims 13 and 14, Chang does not specifically disclose the specific length or width of the extensions or the distance between the base and emitter regions. However,

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it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the length or width of the fishbone extensions or the distance between the base and emitter regions of the desired parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In re claims 15 and 16, Chang only discloses 3 extensions to the spine, however, It would have been obvious to one of ordinary skill in the art to use three, four, etc., spline extensions since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See also MPEP 2144.04 VI. (B).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hébert (US 5,614,758), Selle et al. (US 4,889,824), and Enquist et al. (US 5,318,916) also disclose HBT's having specific base and emitter structures and desired Ccb and Rb properties.

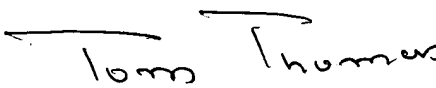
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW
Mew
May 2, 2005


TOM THOMAS
SUPERVISORY PATENT EXAMINER